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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,189	09/26/2001	Takayasu Komatsu	CU-2675 RJS	1641

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EXAMINER

ROY, SIKHA

ART UNIT PAPER NUMBER

2879

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,189

Applicant(s)

KOMATSU ET AL.

Examiner

Sikha Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 25, 2004 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 2 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for 'the front side portion of the through holes shifted towards the outer peripheral side of the shadow mask relative to the rear side hole portion' in the peripheral portion, does not reasonably provide enablement for the central portion of the shadow mask. The specification clearly discloses (page 6 lines 4-17 Figs. 1A, 2A) that in the center portion 22 of the shadow mask the center position of the rear side hole portion 4a almost agrees with the center position of the front side hole portion 3a. Hence the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make use of the invention commensurate in scope with these claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,830,373 to Ohtake et al. ('373) and further in view of U.S. Patent 5,635,320 to Ohtake et al. ('320).

Regarding claim 1 Ohtake et al. ('373) disclose (column 6 lines 23-60, Figs. 3A, 3B, 4A, 4B) a shadow mask 26 formed of a thin metal plate containing through holes (circular electron beam apertures) each through hole having a rear side hole portion 40 through which electron beam enters and a front side hole portion 42 through which the electron beam is emitted to form a beam spot on a surface to be irradiated. Each through hole, defined by substantially tapered (arcuated) recess has a ridge portion formed by the intersection of the taper surface of the rear side hole portion and a taper surface of the front side hole portion. Ohtake discloses each electron beam aperture 12 has small opening 40 open to a rear surface facing the electron gun has circular open edge and the large opening 42 open in front surface has circular open edge and has diameter larger than that of the circular open edge of the small opening. The small and large openings have coaxial relationship in the central portion of the shadow mask. In the peripheral portion of the shadow mask the electron beams are obliquely incident

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and hence the front side portion of the through holes 42 is shifted towards the peripheral side (extending the periphery of the large opening radially with respect to the mask center). Ohtake et al. ('373) disclose (column 7 lines 44-51) that the thickness of the shadow mask is 0.13mm, hole width S (large opening diameter D) at the front side is 0.205mm, hole width Q (small opening diameter d) at the rear side is 0.125 mm. These values satisfy the taper size $T = (S-Q)/2$ is within a range of 30 to 40 % of the thickness of the shadow mask thickness as claimed.

Ohtake et al. further disclose the ridge portion is formed at a sectional height (height from the surface 26a of the shadow mask 26 to the minimum diameter portion) 20 μ m.

Claim 1 differs from Ohtake et al. ('373) in that Ohtake ('373) does not exemplify the rear side through hole portion formed of inwardly tapered surface.

Ohtake ('320) in same field of endeavor of color cathode ray tube discloses (Figs. 4,6,7 column 7 lines 25-30, column 8 lines 5-8, 21-40) the smaller opening 40 is constituted by a substantially arcuated recess and the wall surface of the smaller opening is inwardly tapered from the open edge toward the boundary 43. Ohtake ('320) discloses this inclination of the outward wall surface of the small opening prevents reflection of electron beams towards the phosphor screen and hence improves contrast.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the wall surface of the rear side hole portion of the shadow mask of Ohtake ('373) to be inwardly tapered for preventing reflection of electron beams towards the phosphor screen and thus improving contrast.

Claim 2 essentially recites the same limitation as of claim 1 for apertures in the peripheral section of the shadow mask and is rejected for the same reason (see rejection of claim 1).

Response to Arguments

Applicant's arguments filed August 25, 2004 have been fully considered but they are not persuasive.

In response to applicants' argument that Ohtake ('373) does not disclose the larger opening 42 on the front side having a circular shape the examiner respectfully disagrees. In the central portion of the shadow mask (Figs. 3A, 4A) Ohtake discloses both small (on rear surface) and large (on front surface) through holes have circular open edge. In the peripheral portion of the shadow mask (Figs. 3B, 4B) both small and large through holes are also circularly shaped. The larger through holes in the peripheral side of the shadow mask having a bulge portion do not have constant diameter but are indeed circularly shaped having opening diameter D.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.R.

Sikha Roy
Patent Examiner
Art Unit 2879

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